AGRICULTURAL MEMORANDUM NO. 474

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The occurrence of winter temperature relevant to the growth of young beef cattle

C V Smith

1. Experimental data used to identify Critical Temperatures relevant to the growth of young beef cattle kept under farm conditions are set down in an earlier memorandum (Ag. Mem 473)

   For steers of around 200 kg (4 cwt) fed to appetitite on poor to moderate quality hay only, Critical Temperatures of around 4.8 to 5.3°C are suggested (at wind speed of 8-12 kt).

   With a better quality feed, Critical Temperatures in the range 3.3° to 2.0°C are suggested.

2. It is obviously of interest to look at the occurrence of such temperatures in the U.K. Maps attached show the average means of daily mean temperature (the parameter used in the analysis of Ag.Mem.473) for the months of November through to March.

   To reduce some of the complications due to altitude, each of the 250 stations used to produce the maps has had its temperature observations 'corrected' to mean sea level.

   To put back the effect of altitude when using the maps, figures read from them have to be reduced by 0.6°C for each 100 metres (325 ft), the site of interest is above mean sea level.

3. One inference that may be drawn from the long period average temperature data appropriate to a given month is that in 5 years in 10, the observed monthly temperature will have been below the average.

   Even with an observed monthly temperature above the average, we must, in the UK, expect spells within such a month when temperatures will have been below the long period monthly average.

   One working interpetation of the maps might be then that within the area covered by the 5°C isopleth for example, we shall find, in perhaps 7 or 8 years in 10, long spells when the average daily mean temperature over the spell was 5°C or less.

4. November - only those areas of the Grampians above 300-500 ft would appear to be much at risk.

   December - all parts of the UK except the extreme South West would appear to be at risk.

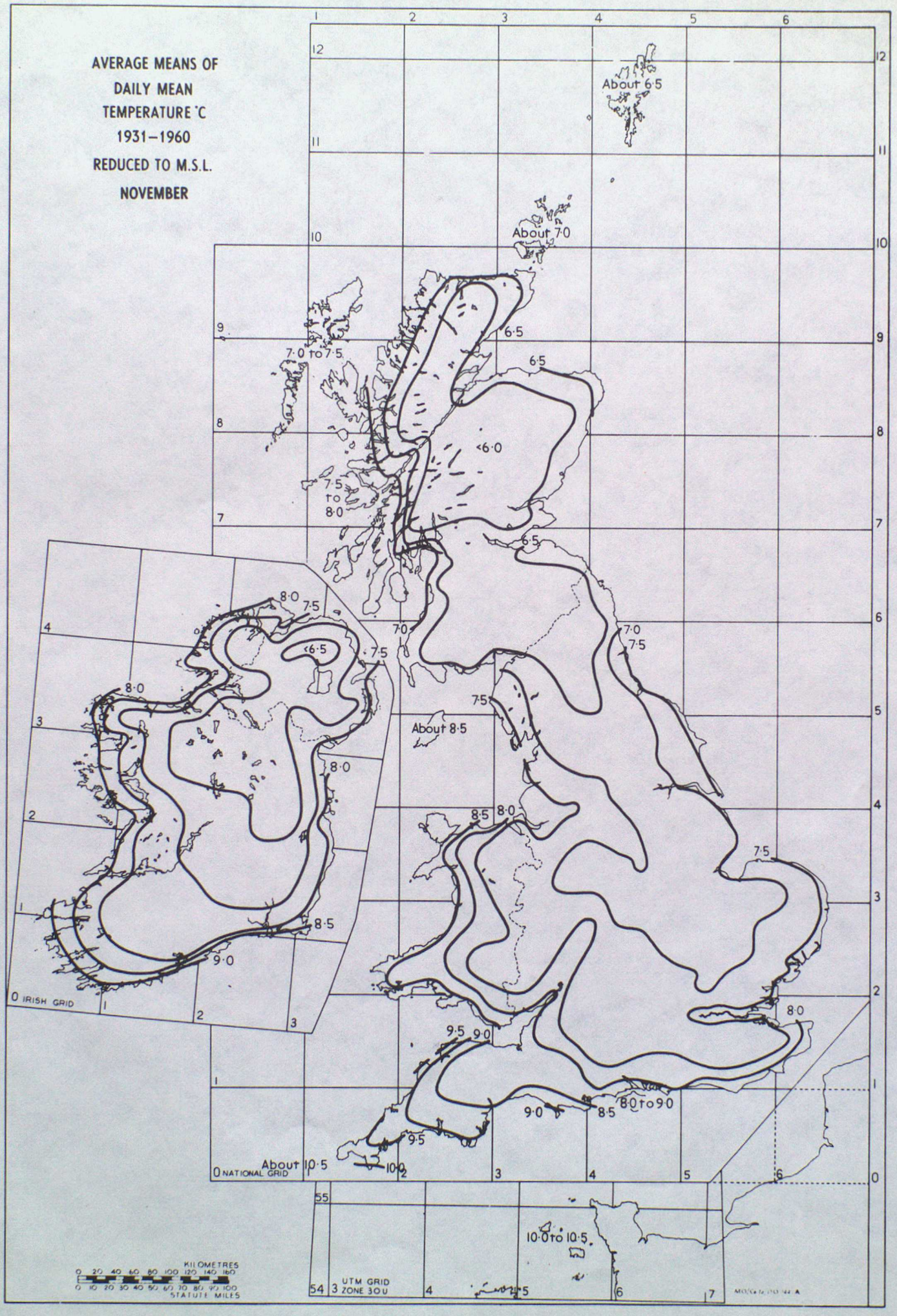
   January - over the greater part of the UK some feed supplements would appear necessary if body weight is to be maintained.

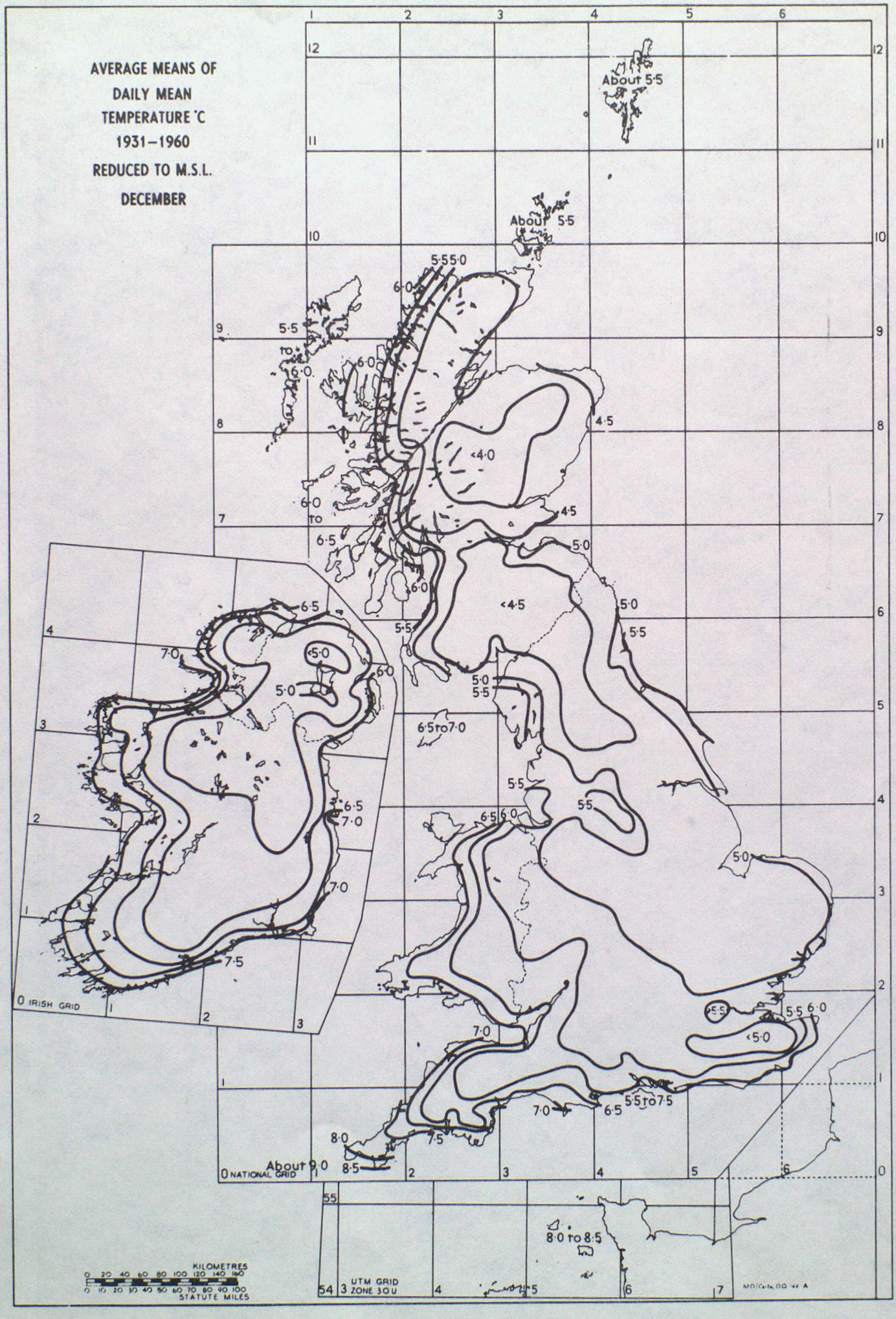
   February - the position is only marginally improved over January.

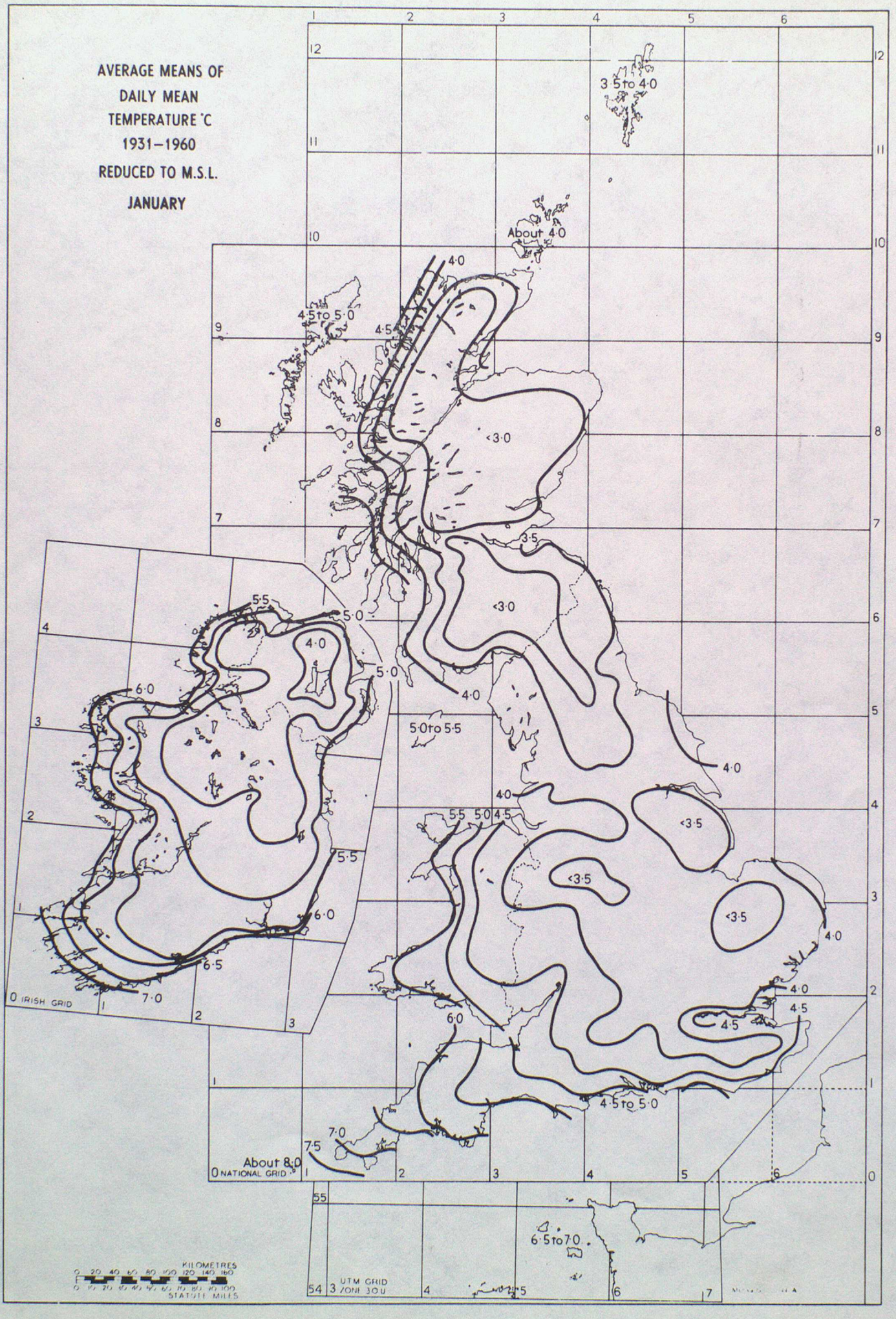
   March - the risk now is basically over the higher ground of Northern England and Scotland.

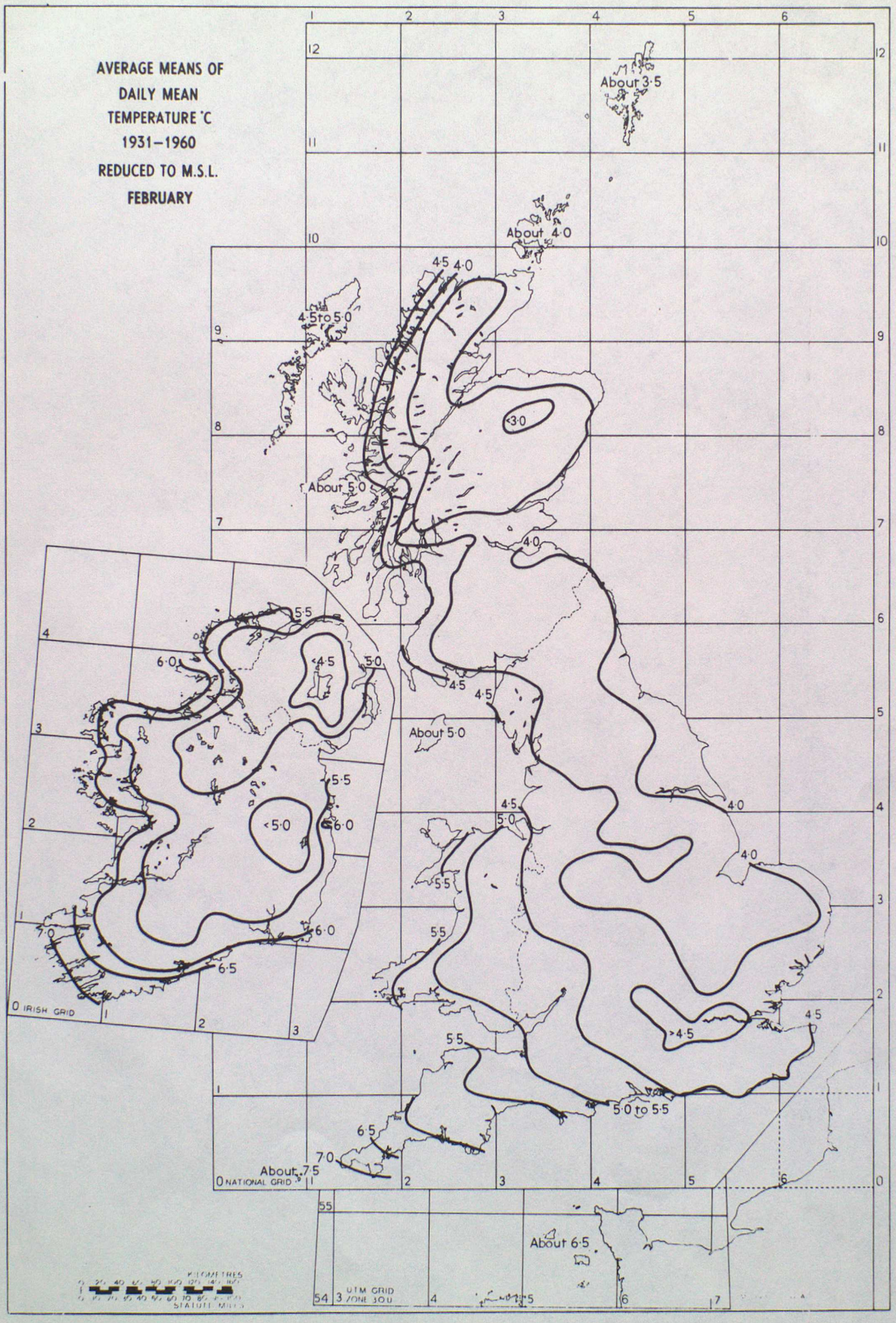
Meteorological Office
Cambridge
July 1972

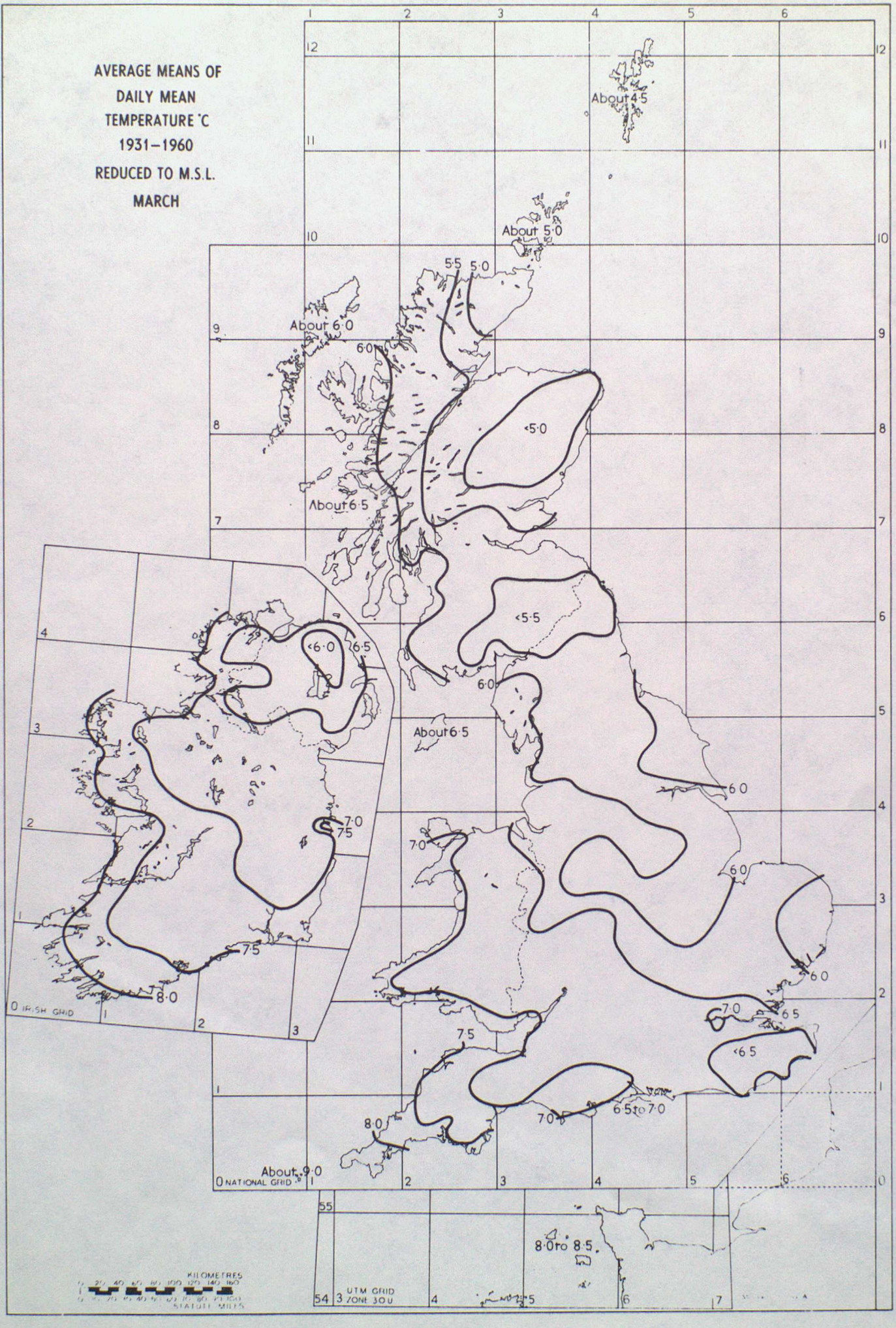
FHI


AVERAGE MEANS OF
DAILY MEAN
TEMPERATURE °C
1931–1960
REDUCED TO M.S.L.
NOVEMBER
About 6·5
About 7·0
6·5
7·0 to 7·5
6·5
<6·0
7·5
to
8·0
6·5
8·0
7·5
7·0
7·0
7·5
<6·5
7·5
8·0
7·5
About 8·5
8·0
8·5
8·0
7·5
8·5
9·0
9·5
9·0
8·0
8·0 to 9·0
9·0
8·5
9·5
About 10·5
10·0
10·0 to 10·5
O IRISH GRID
O NATIONAL GRID
KILOMETRES
0 20 40 60 80 100 120 140 160
0 10 20 30 40 50 60 70 80 90 100
STATUTE MILES
UTM GRID
ZONE 30U


AVERAGE MEANS OF
DAILY MEAN
TEMPERATURE °C
1931–1960
REDUCED TO M.S.L.
DECEMBER
About 5·5
About 5·5
5·5 5·0
6·0
5·5
to
6·0
6·0
4·5
<4·0
6·0
to
6·5
4·5
5·0
6·0
<4·5
5·0
5·5
6·5
7·0
<5·0
5·0
5·0
5·5
6·5 to 7·0
5·5
5·5
6·5
7·0
6·5 6·0
5·0
7·0
7·5
5·5 6·0
<5·0
7·0
6·5
5·5 to 7·5
8·0
7·5
About 9·0
8·5
8·0 to 8·5
O IRISH GRID
O NATIONAL GRID
KILOMETRES
0 20 40 60 80 100 120 140 160
0 10 20 30 40 50 60 70 80 90 100
STATUTE MILES
UTM GRID
ZONE 30U


AVERAGE MEANS OF
DAILY MEAN
TEMPERATURE °C
1931–1960
REDUCED TO M.S.L.
JANUARY
3·5 to 4·0
About 4·0
4·0
4·5 to 5·0
4·5
<3·0
3·5
<3·0
5·5
5·0
4·0
6·0
5·0
4·0
5·0 to 5·5
4·0
4·0
5·5 5·0 4·5
<3·5
<3·5
<3·5
5·5
6·0
6·5
7·0
4·0
4·0
4·5
4·5
6·0
4·5 to 5·0
7·0
7·5
About 8·0
6·5 to 7·0
O IRISH GRID
O NATIONAL GRID
UTM GRID
ZONE 30U
KILOMETRES
0 20 40 60 80 100 120 140 160
STATUTE MILES


AVERAGE MEANS OF
DAILY MEAN
TEMPERATURE °C
1931–1960
REDUCED TO M.S.L.
FEBRUARY
About 3·5
About 4·0
4·5 4·0
4·5 to 5·0
<3·0
About 5·0
4·0
5·5
6·0
<4·5
5·0
4·5
4·5
About 5·0
5·5
4·5
5·0
4·0
4·0
<5·0
6·0
5·5
5·5
6·0
6·5
>4·5
4·5
5·5
5·0 to 5·5
6·5
7·0
About 7·5
About 6·5
0 IRISH GRID
0 NATIONAL GRID
UTM GRID
ZONE 30U
KILOMETRES
STATUTE MILES


AVERAGE MEANS OF
DAILY MEAN
TEMPERATURE °C
1931–1960
REDUCED TO M.S.L.
MARCH
About 4·5
About 5·0
About 6·0
About 6·5
About 9·0
5·5
5·0
6·0
<5·0
<5·5
<6·0
6·5
7·0
7·5
8·0
6·5 to 7·0
8·0 to 8·5
<6·5
IRISH GRID
NATIONAL GRID
UTM GRID
ZONE 30U
KILOMETRES
STATUTE MILES